

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:
  - first extracting means for extracting a first image characteristic amount from an image;
  - 5 second extracting means for extracting a second image characteristic amount from said image;
  - judging means for judging similarity between the first image characteristic amount extracted by said first extracting means and the second image
  - 10 characteristic amount extracted by said second extracting means; and
  - selecting means for selecting either the first image characteristic amount or the second image characteristic amount as a characteristic amount of the image in accordance with a judging result of said judging means.
2. An image processing apparatus according to claim 1, wherein, if said judging means judges that the image characteristic amounts are similar to each other, said selecting means selects the image character amount having a smaller data amount among the first and second image characteristic amounts, and, if said judging means judges that the image characteristic amounts are not similar to each other, said selecting means selects the image characteristic amount having a greater data amount among the first and second image characteristic

amounts.

3. An image processing apparatus according to  
claim 1, wherein the image character amount is obtained  
5 by scaling the image and by effecting DCT processing  
and quantization processing on the scaled image and by  
extracting several coefficients among coefficients  
obtained by a processing result from a low frequency  
component side.

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4. An image processing apparatus according to  
claim 3, wherein said first and second extracting means  
extract different numbers of coefficients from each  
other.

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5. An image processing apparatus comprising:  
DCT processing means for effecting DCT processing  
of an image;

20 quantization means for effecting quantization of  
data subjected to the DCT processing by said DCT  
processing means;

25 coefficient selecting means for selecting the  
number of quantization DCT coefficients to be extracted  
among the quantization DCT coefficients subjected to  
the quantization by said quantization means, in  
accordance with an original image; and

setting means for setting the number of

quantization DCT coefficients selected by said coefficient selecting means as an image characteristic amount.

5       6. An image processing apparatus according to claim 5, wherein the image has  $8 \times 8$  pixels and is represented by Y/Cb/Cr color space.

10      7. An image processing apparatus according to claim 6, wherein the image having  $8 \times 8$  pixels is obtained by scaling-down the original image and by converting it into Y/Cb/Cr color space data if necessary.

15      8. An image processing apparatus according to claim 5, further comprising extracting means for extracting several quantization DCT coefficients from a low frequency component side on the basis of the quantization DCT coefficients selected by said coefficient selecting means.

20      9. An image processing apparatus according to claim 5, wherein the image is a still image or a frame image having moving image data, and said selecting means selects the number of quantization DCT coefficients in accordance with the fact that the original image is the still image or the fact that the

original image is the frame image having moving image data.

10. An image processing apparatus according to  
5 claim 5, wherein the quantization DCT coefficients of  
Y/Cb/Cr components are re-arranged by zigzag scanning,  
and, when the original image is a still image, six  
quantization DCT coefficients of Y/Cb/Cr components are  
selected, respectively, from a low frequency component  
10 side, and, when the original image is a moving image,  
six quantization DCT coefficients of a Y component are  
selected and three quantization DCT coefficients of  
Cb/Cr components are selected, respectively, from a low  
frequency component side.

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11. An image processing apparatus according to  
claim 5, further comprising image inputting means  
capable of inputting both still image data and moving  
image data, and judging means for judging whether the  
20 image inputted in accordance with an image input mode  
is a still image or a frame image having the moving  
image data.

12. An image processing apparatus according to  
25 claim 11, wherein said image inputting means capable of  
inputting both still image data and moving image data  
is a digital video device capable of effecting still

image sensing, and the number of quantization DCT coefficients to be selected is determined by in synchronous with an image sensing mode of said digital video device.

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13. An image processing apparatus according to claim 11, wherein MINE TYPE of data including the original image judges whether the original image has still image data or moving image data.

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14. An image processing apparatus according to claim 11, wherein extension of a file number of data including the original image judges whether the original image has still image data or moving image data.

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15. An image processing apparatus according to claim 5, wherein two candidates are prepared as the number of quantization DCT coefficients in said selecting means, and one is selected among them, and similarity between first image characteristic amount data associated with the smaller number of quantization DCT coefficients and second image characteristic amount data associated with the greater number of quantization DCT coefficients is judged, and one of the first image characteristic amount data and the second image characteristic amount data associated with the greater

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number of quantization DCT coefficients is selected in accordance with a comparison result between a similarity value and a predetermined threshold value.

5        16. An image processing apparatus according to claim 15, wherein, when the similarity between the first image characteristic amount data and the second image characteristic amount data is judged, judgement of similarity is effected by supplementing a 10 predetermined value as data of a coefficient portion which is not included in the first image characteristic amount data having smaller number of coefficients but is included in the second image characteristic amount data having greater number of coefficients to the first 15 image characteristic amount data.

17. An image processing apparatus according to claim 16, wherein the predetermined value is 16 which is the number of quantization DCT coefficients.

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18. An image processing apparatus according to claim 16, wherein the predetermined value is a value which means that the DCT coefficient is zero.

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19. An image processing method comprising:  
a first extracting step for extracting a first image characteristic amount from an image;

a second extracting step for extracting a second image characteristic amount from said image;

5 a judging step for judging similarity between the first image characteristic amount extracted by said first extracting step and the second image characteristic amount extracted by said second extracting step; and

10 a selecting step for selecting either the first image characteristic amount or the second image characteristic amount as a characteristic amount of the image in accordance with a judging result of said judging step.

20. An image processing method according to claim 19, if said judging step judges that the image characteristic amounts are similar to each other, said selecting step selects the image character amount having a smaller data amount among the first and second image characteristic amounts, and, if said judging step 20 judges that the image characteristic amounts are not similar to each other, said selecting step selects the image character amount having a greater data amount among the first and second image characteristic amounts.

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21. An image processing method according to claim 19, wherein the image character amount is obtained by

scaling the image and by effecting DCT processing and quantization processing on the scaled image and by extracting several coefficients among coefficients obtained by a processing result from a low frequency 5 component side.

22. An image processing method according to claim 21, wherein said first and second extracting steps extract different numbers of coefficients from each 10 other.

23. An image processing method comprising:  
a DCT processing step for effecting DCT processing of an image;  
15 a quantization step for effecting quantization of data subjected to the DCT processing by said DCT processing step;  
a coefficient selecting step for selecting the number of quantization DCT coefficients to be extracted 20 among the quantization DCT coefficients subjected to the quantization by said quantization step, in accordance with an original image; and  
a setting step for setting the number of quantization DCT coefficients selected by said 25 coefficient selecting step as an image characteristic amount.

24. An image processing method according to claim 23, wherein the image has  $8 \times 8$  pixels and is represented by Y/Cb/Cr color space.

5 25. An image processing method according to claim 24, wherein the image having  $8 \times 8$  pixels is obtained by scaling-down the original image and by converting it into Y/Cb/Cr color space data if necessary.

10 26. An image processing method according to claim 23, further comprising an extracting step for extracting several quantization DCT coefficients from a low frequency component side on the basis of the quantization DCT coefficients selected by said 15 coefficient selecting step.

27. An image processing method according to claim 23, wherein the image is a still image or a frame image having moving image data, and said selecting step 20 selects the number of quantization DCT coefficients in accordance with the fact that the original image is the still image or the fact that the original image is the frame image having moving image data.

25 28. An image processing method according to claim 23, wherein the quantization DCT coefficients of Y/Cb/Cr components are re-arranged by zigzag scanning,

and, when the original image is a still image, six quantization DCT coefficients of Y/Cb/Cr components are selected, respectively, from a low frequency component side, and, when the original image is a moving image, 5 six quantization DCT coefficients of a Y component are selected and three quantization DCT coefficients of Cb/Cr components are selected, respectively, from a low frequency component side.

10           29. An image processing method according to claim 23, further comprising an image inputting step capable of inputting both still image data and moving image data, and a judging step for judging whether the image inputted in accordance with an image input mode is a 15 still image or a frame image having the moving image data.

20           30. An image processing method according to claim 29, wherein MINE TYPE of data including the original image judges whether the original image has still image data or moving image data.

25           31. An image processing method according to claim 29, wherein extension of a file number of data including the original image judges whether the original image has still image data or moving image data.

32. An image processing method according to claim 23, wherein two candidates are prepared as the number of quantization DCT coefficients in said selecting step, and one is selected among them, and similarity 5 between first image characteristic amount data associated with the smaller number of quantization DCT coefficients and second image characteristic amount data associated with the greater number of quantization DCT coefficients is judged, and one of the first image 10 characteristic amount data and the second image characteristic amount data associated with the greater number of quantization DCT coefficients is selected in accordance with a comparison result between a similarity value and a predetermined threshold value.

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33. An image processing method according to claim 32, wherein, when the similarity between the first image characteristic amount data and the second image characteristic amount data is judged, judgement of 20 similarity is effected by supplementing a predetermined value as data of a coefficient portion which is not included in the first image characteristic amount data having smaller number of coefficients but is included in the second image characteristic amount data having greater number of coefficients to the first image 25 characteristic amount data.

34. An image processing method according to claim 33, wherein the predetermined value is 16 which is the number of quantization DCT coefficients.

5 35. An image processing method according to claim 33, wherein the predetermined value is a value which means that the DCT coefficient is zero.

10 36. A storing medium comprising:

10 a program code for a first extracting step for extracting a first image characteristic amount from an image;

15 a program code for a second extracting step for extracting a second image characteristic amount from said image;

20 a program code for a judging step for judging similarity between the first image characteristic amount extracted by said first extracting step and the second image characteristic amount extracted by said second extracting step; and

25 a program code for selecting step for selecting either the first image characteristic amount or the second image characteristic amount as a characteristic amount of the image in accordance with a judging result of said judging step.

37. A storing medium comprising:

a program code for a DCT processing step for  
effecting DCT processing of an image;

5 a program code for a quantization step for  
effecting quantization of data subjected to the DCT  
processing by said DCT processing step;

10 a program code for a coefficient selecting step  
for selecting the number of quantization DCT  
coefficients to be extracted among the quantization DCT  
coefficients subjected to the quantization by said  
15 quantization step, in accordance with an original  
image; and

15 a program code for a setting step for setting the  
number of quantization DCT coefficients selected by  
said coefficient selecting step as an image  
characteristic amount.

38. In a computer data signal adapted to extract  
an image characteristic amount and to represent command  
sequence carried out by an image processing method for  
20 applying the characteristic amount to an image and  
incorporated into a conveying wave, said image  
processing method comprising:

a first extracting step for extracting a first  
characteristic amount from an image;

25 a second extracting step for extracting a second  
image characteristic amount from said image;

a judging step for judging similarity between the

first image characteristic amount extracted by said first extracting step and the second image characteristic amount extracted by said second extracting step; and

5 a selecting step for selecting either the first image characteristic amount or the second image characteristic amount as a characteristic amount of the image in accordance with a judging result of said judging step.

10 39. In a computer data signal adapted to extract an image characteristic amount and to represent command sequence carried out by an image processing method for applying the characteristic amount to an image and 15 incorporated into a conveying wave, said image processing method comprising:

a DCT processing step for effecting DCT processing of an image;

20 a quantization step for effecting quantization of data subjected to the DCT processing by said DCT processing step;

25 a coefficient selecting step for selecting the number of quantization DCT coefficients to be extracted among the quantization DCT coefficients subjected to the quantization by said quantization step, in accordance with an original image; and

a setting step for setting the number of

quantization DCT coefficients selected by said coefficient selecting step as an image characteristic amount.